

Date: May 1, 2012

TO: FCC ELS

FROM: Tim Godfrey, Electric Power Research Institute, FRN 0021746219

SUBJECT: **Purpose statement for Experimental License (Form 442)**

Attachment to:

Form 442 Confirmation Number: EL708436

Form 442 File Number: 0240-EX-PL-2012

Date of Submission: May 11, 2012

About EPRI

The Electric Power Research Institute, Inc. (EPRI) conducts research and development relating to the generation, delivery and use of electricity for the benefit of the public. An independent, nonprofit organization, EPRI brings together its scientists and engineers as well as experts from academia and industry to help address challenges in electricity, including reliability, efficiency, health, safety and the environment. EPRI also provides technology, policy and economic analyses to drive long-range research and development planning, and supports research in emerging technologies. EPRI's members represent more than 90 percent of the electricity generated and delivered in the United States, and international participation extends to 40 countries. EPRI's principal offices and laboratories are located in Palo Alto, Calif.; Charlotte, N.C.; Knoxville, Tenn.; and Lenox, Mass.

EPRI conducts research on communications technologies that are relevant to our member utilities and useful for the Smart Grid. One communication technology that is now emerging is the use of TV White Space. Utilities are interested in the potential, but are looking for research and testing results on the characteristics and performance of this new technology. EPRI is developing a research program to fill that need for our member utilities. To enable that research program, EPRI is filing this Application for a TV White Space Experimental License.

Answers to questions from Federal Communications Commission Application for New Form 442:

A. The complete program of research and experimentation proposed including description of equipment and theory of operation.

The EPRI research program will focus on the application of TV White Space spectrum for utility communications. There are a variety of potential applications ranging from smart metering to distribution automation. The EPRI supplemental testing program will serve a group of utilities and provide results on the performance and behavior of TV White Space devices and the band characteristics. Commercial, off the shelf base stations, terminals, and antennas will be used in the testing program. A variety of equipment will be tested (including interoperability for equipment claiming standards-conformance), depending on vendor availability, testing schedule, and budget. The test program will be developed with input from the member utilities to meet their needs and objectives.

b. The specific objectives sought to be accomplished.

The EPRI research program will focus on the performance characteristics and reliability of radio links operating in the TV White Space spectrum. Testing will be conducted at various distances between base station and terminals, over extended periods of time, logging throughput, latency, packet loss statistics, and operating channel. Testing will also be done in proximity with other types of utility radio systems operating in UHF bands. Different types of antennas will be evaluated, as well as different base station and client locations (within the licensed geographic area), to assess the system performance in a variety of terrains and environments.

c. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion or utilization of the radio art, or is along line not already investigated.

Utility and Smart Grid communications applications have a unique set of requirements. TV White Spaces present an interesting opportunity, but there are many questions to be answered before utilities can engage in pilot programs. Part of EPRI's charter is to provide research in emerging technology. Due to our strong relationship with utilities, EPRI is in a unique position to develop a test program and a final report that can become a valuable asset to utilities that are considering the use of TV White Space in their future communications systems.